

Claims:

1. A method of operating a network device including an embedded first configuration database and an embedded second configuration database, comprising:
- operating the network device with the first configuration database as a primary configuration database;
- operating the network device with the second configuration database as a backup configuration database;
- replicating modifications made to the first configuration database to the second configuration database;
- detecting a configuration database upgrade operation;
- stopping replication of data from the first configuration database to the second configuration database;
- upgrading the second configuration database without disrupting operation of the network device and the first configuration database; and
- switching over to use the second configuration database as the primary configuration database.
2. The method of claim 1, further comprising:
- detecting commitment of configuration database upgrade;
- operating the network device with the first configuration database as a backup configuration database; and
- replicating modifications made to the second configuration database to the first configuration database.
3. The method of claim 1, further comprising:
- detecting errors with the configuration database upgrade; and
- switching over to use the first configuration database as the primary configuration database.
4. The method of claim 1, wherein upgrading the second configuration database comprises:

receiving a configuration control file from a network management server; and
executing the configuration control file.

5 5. The method of claim 4, wherein upgrading the second configuration database further
comprises:

receiving a data definition language (DDL) file including structured query
language (SQL) commands; and

10 wherein executing the configuration control file comprises executing the SQL
commands to construct an upgraded database schema in the second configuration
database.

6. The method of claim 1, wherein detecting a configuration database upgrade operation
comprises:

receiving an upgrade notification from a network management system server.

15 7. The method of claim 6, wherein receiving an upgrade notification from a network
management system server comprises:

receiving SQL commands from the network management server; and
executing the SQL commands.

20 8. The method of claim 7, wherein executing the SQL commands comprises:

writing a software load record indicating a configuration database upgrade in a
table within the first configuration database.

25 9. The method of claim 8, wherein the table comprises a software management system
table.

10. The method of claim 7, wherein the SQL commands are received within a DDL file.

30 11. The method of claim 8, wherein detecting a configuration database upgrade operation
further comprises:

detecting the software load record indicating the configuration database upgrade through a master system resiliency manager (SRM); and

notifying a first slave SRM associated with the second configuration database to perform a configuration database upgrade.

5

12. The method of claim 11, wherein stopping replication of data from the first configuration database to the second configuration database comprises:

causing the second configuration database to cease replicating data changes made to the first configuration database.

10

13. The method of claim 1, wherein before detecting a configuration database upgrade operation the method further comprises:

receiving upgraded applications from a network management server.

15

14. The method of claim 1, wherein before detecting a configuration database upgrade operation the method further comprises:

receiving new applications from a network management server.

20

15. The method of claim 1, wherein the network device comprises a first printed circuit board including a first processor component and wherein operating the network device with the first configuration database as a primary configuration database comprises:

maintaining the first configuration database through the first processor component; and

25

operating the network device with the first printed circuit board as a primary printed circuit board and the first processor component as a primary processor component.

30

16. The method of claim 15, wherein the network device further comprises a second printed circuit board including a second processor component and wherein operating

the network device with the second configuration database as a backup configuration database comprises:

maintaining the second configuration database through the second processor component; and

5 operating the network device with the second printed circuit board as a backup printed circuit board and the second processor component as a backup processor component.

10 17. The method of claim 16, wherein switching over to use the second configuration database as the primary configuration database comprises:

switching over to use the second printed circuit board and second processor component as the primary printed circuit board and the primary processor.

15 18. The method of claim 2, wherein detecting commitment of configuration database upgrade comprises:

saving the upgraded second configuration database to persistent memory.

19. A method of managing a telecommunications network, comprising:

20 operating a network device with a first configuration database as a primary configuration database;

operating the network device with a second configuration database as a backup configuration database;

replicating modifications made to the first configuration database to the second configuration database;

25 sending SQL commands from network management server to the network device;

executing the SQL commands to write a software load record indicating a configuration database upgrade in a table within the first configuration database;

replicating the changes to the first configuration database to the second configuration database;

30 stopping replication of data from the first configuration database to the second configuration database;

switching over to use the second configuration database as the primary configuration database.

[illegible]